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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,233	08/30/2001	Walter L. Moden	3161.3US (97-0116.2)	2436

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LAMB, BRENDA A

ART UNIT	PAPER NUMBER
1734	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

T-D-5

Office Action Summary

Application No.	Applicant(s)
09/944,233	Woden et al
Examiner	**Group Art Unit**
LAMB	1734

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

P ri d f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☑ Responsive to communication(s) filed on 11/26/01.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☑ Claim(s) 1-53 is/are pending in the application.

Of the above claim(s)_____ is/are withdrawn from consideration.

☐ Claim(s)_____ is/are allowed.

☑ Claim(s) 1-27 and 29-53 is/are rejected.

☑ Claim(s) 28 is/are objected to.

☐ Claim(s)_____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on_____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on_____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number)_____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received:_____.

Attachm nt(s)

☑ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☑ Notice of Reference(s) Cited, PTO-892

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Interview Summary, PTO-413

☐ Notice of Informal Patent Application, PTO-152

☐ Other_____

Office Action Summary

a. The disclosure is objected to because of the following informalities: The specification at page 1 at lines 1-2 indicates that 08/906,578 is abandoned yet the above cited application is now U.S. Patent 6,36,973.

Appropriate correction is required.

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 3-6, 30-33 and 52 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed specification fails to teach or suggest the following: the at least one mechanism is configured to manipulate surface tension of the adhesive; the at least one second mechanism configured to manipulate surface tension of the viscous material; the at least one mechanism manipulates the difference in pressure within the adhesive material and ambient air; the at least one second mechanism manipulates the difference in pressure within the viscous material and ambient air; the at least one mechanism uses surface tension of the adhesive material to control surface area and thickness of adhesive material; the at least one second mechanism uses surface tension of the viscous material to control surface area and thickness of viscous material; the at least one mechanism is comprised at least one of a coating stencil, a wiper, a vacuum and a height detection mechanism; at least one second

mechanism is attached to the reservoir; at least one second mechanism comprises at least one of a coating stencil, a wiper, a vacuum and a height detection mechanism.

3. Claims 4-6 and 30-33 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The originally filed specification fails to teach how the height detection system taken alone levels the exposed surface of the adhesive or viscous material with the specification at page 12 first paragraph sets forth the height detection mechanism as the combination of a transmitter 140 and light receiver 142 and this combination of elements is incapable of leveling the exposed surface. The originally filed specification fails to teach how one manipulates surface tension or difference in pressure within the adhesive/viscous material and ambient air.

4. Claims 3-5 and 30-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3-4 and 30-31 since it is unclear how one manipulates surface tension or difference in pressure within the adhesive material and ambient air as set forth in claims 4 and 31. It is unclear how the recitation in claims 5 and 32 that the mechanism uses surface tension further limits the structure of the apparatus.

5. Claims 7-20are cited to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The recitation in claim 7 that the apertures of the stencil or at least one mechanism increases the exposed surface of the adhesive material does not further limit claim 1 since applicant in claim 1 sets forth that the at least one mechanism maintains the exposed surface of the adhesive material at a substantially constant level.

The recitation in claim 2 that the exposed surface is a meniscus does not further limit claim 1 since claim 1 claims that the at least one mechanism levels the exposed surface.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-6, 22 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa et al.

Nakagawa et al teaches the design of an apparatus for applying a paste which is known in the art as a electronic adhesive to a substrate, electronic chips, which are known as small wafers

of semiconductor material. Nakagawa et al teaches as shown in Figures 11-14 that his apparatus is comprised of an adhesive reservoir comprised of a pool chamber with a upward facing opening and at least one mechanism including a wiper or leveling blade 73 associated with the reservoir to level the exposed surface of the adhesive material and maintain the exposed surface of the adhesive substantially level obviously by setting the height of the leveling blade above the bottom of the adhesive reservoir. Nakagawa et al shows that the adhesive reservoir is shaped to obviously provide the exposed surface with a precise location via angling of the walls of the reservoir as shown in Figure 12. Thus claims 1 and 6 are obvious over Nakagawa t al. With respect to claim 22, Nakagawa et al teaches at least a second mechanism; a dip head portion 2 which includes the holding plate for holding the chips or semiconductor components, such that a portion of the chip is brought into contact with the expose surface of the adhesive with respect to claims 3-5, the Nakagawa et al. at least one mechanism which includes wiper or leveling blade which acts to level or flatten out the surface of adhesive material in the reservoir is deemed to be configured to manipulate and use the adhesive material in the manner set forth in the claims absent a clear showing of unexpected results. With respect to claim 2, absent a clear recitation of how the recitation that the exposed surface is a meniscus further limits the claim, it is deemed that the Nakagawa et al adhesive reservoir is capable holding an adhesive material which forms a mensicured. With respect to claim 25, Nakagawa et al shows in Figure 12 that the at least one mechanism is attached to the reservoir. With respect to claim 26, Nakagawa et al fails to teach to teach the at least one semiconductor component is at least one lead finger on a lead frame. However, it would have been obvious that the Nakagawa et al dip vessel/adhesive reservoir is

capable of applying adhesive/paste to a variety of substrates including a semiconductor component which is a lead frame having at least one lead finger.

9. Claims 1-27 and 29-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al.

Sakai et al teaches the design of an apparatus for applying a viscous material to an electronic substrate such as semiconductor component Sakai et al teaches the apparatus is comprised of a reservoir is comprised of a pool chamber 4 defined by are upward facing opening and a pipe (not numbered) extending from the pool chamber which reads on a viscous inflow chamber. Sakai et al teaches at least one first mechanism, elements 5 and 5a, which as acts as a pump which obviously be operated so as pump the desired amount/height of viscous material. Sakai et al shows a coating stencil 3 arranged on top of the reservoir and shows the levelness of the exposed surface extruded through the stencil and thereby reads on the claimed at least one second mechanism set forth in claim 27 or the at least one mechanism set forth in claim 1. With respect to claims 7-20 and 34-48, Sakai et al fails to teach the size of the apertures, amount/number of apertures and viscosity of the viscous/adhesive material set forth in the above cited claims. However, it would have been obvious design choice to optimize the size of the Sakai et al stencil plate such that they are within the scope of the claims since it has been held that a change in size is generally recognized as being within the level of ordinary skill in the art (see In Re Rose, 105 USPQ 237 (CCPA 1955). Further, it would have been obvious to optimize the number of apertures of the Sakai et al stencil plate such that they are within the scope of the claims obviously dependent on the pattern one desires to apply to the substrate. Finally, it would have been obvious that the Sakai et al apparatus is structured and arranged to apply a variety of

viscous/adhesive materials to the substrate including those within the scope of the claims absent a clear showing of unexpected results. With respect to claim 25 and 52, Sakai et al fails to teach the stencil is attached to the reservoir but obvious to do so to increase structural stability of the apparatus. With respect to claims 21 and 49, Sakai et al teaches in an alternate embodiment applying a vacuum to the apparatus including the bottom of the stencil to extrude the viscous/adhesive material through apertures of the stencil. Therefore, it would have been obvious to modify the Sakai et al apparatus by providing a vacuum means such as shown in Figure 7 such that a vacuum is applied to the reservoir with stencil including the back side of the stencil for the obvious reason of greater control of the extrusion of the adhesive/ viscous material. With respect to claims 22 and 50, Sakai et al teaches a means for bringing the substrate into contact with the exposed surface of the adhesive/viscous material. With respect to claims 23 and 51, although Sakai et al fails to teach the apparatus includes a circulation system but obvious to an artisan to do so since it is conventional for known advantages of circulation/mixing material in a Reservoir. With respect to claims 3-5 and 30-32, absent a clear recitation if how one manipulates/uses surface tension, it is deemed that Sakai et al stencil plate manipulates/user surface tension in the manner set forth in the claims since provides the same result-substantially end level.

Any inquiry concerning this communication should be directed to Brenda A. Lamb telephone number 703 308-2056.

Lamb/af

4/3/2002

BRENDA A. LAMB
PRIMARY EXAMINER
GROUP 1700